DEPARTMENT OF THE ARMY
CHIEF OF ENGINEERS
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WASHINGTON, D.C. 20310-2600

DAEN

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SUBJECT: Neuse River Basin, Ecosystem Restoration Project, North Carolina

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on ecosystem restoration in the Neuse River Basin, North Carolina. It is accompanied by the report of the district and division engineers. These reports are in final response to two resolutions by the Committee of Public Works of the United States House of Representatives, adopted April 15, 1966, and the Committee on Transportation and Infrastructure, adopted July 23, 1997. The 1966 resolution requested a review of the report of the Chief of Engineers on the Neuse River Basin, North Carolina, published as House Document Numbered 175, Eighty-ninth Congress, and other pertinent reports to determine whether any modifications to the recommendations contained in the report are advisable. The 1997 resolution further requested a review of House Document 175 to determine where modifications of the recommendations are advisable in the interest of flood control (flood risk management), environmental protection and restoration, and related purposes. Preconstruction engineering and design activities for the Neuse River Basin ecosystem restoration project will continue under the authority adopted in July 1997.

2. The Neuse River Basin, the third-largest river basin in North Carolina contains a total area of 6,234 square miles, is one of only four watersheds entirely within the state. It originates at the confluence of the Eno and Flat Rivers in north central North Carolina near the city of Durham and flows southeasterly until reaching tidal waters upstream of the city of New Bern, North Carolina where the river broadens dramatically and changes from a unidirectional freshwater regime to a mixed tidal regime of the Neuse River Estuary before flowing out into Pamlico Sound and the Atlantic Ocean. The Neuse River Basin has experienced severe flooding in the past; consequently elements of the Basin ecosystem have shown signs of significant stress and degradation.

The ecosystem significance of the area is demonstrated on the national, regional, and local level. The Neuse River Basin includes 7 essential fish habitats and 12 significant natural heritage areas. The Neuse River Basin feeds one of the nation's largest and most productive coastal estuaries (Albemarle-Pamlico Sounds). The Albemarle-Pamlico estuary system, which is in the National Estuary Program, is a nursery for 90 percent of the commercial seafood species caught in North Carolina. In 2011 the value of seafood landed in North Carolina had an estimated dockside value of $72.8 million.

The federally listed shortnosed sturgeon will directly benefit from the opening of the dam which will improve passage for migration. The Neuse River Basin is also home to 17 species of rare freshwater mussels, two of which are federally listed as endangered, and a rare snail species. The federally listed dwarf wedgemussel and Tar River spinymussel will benefit from the restoration by increasing fish host for transportation. The Neuse River basin also provides habitat for 7 other federally listed

endangered species which include, the West Indian manatee, Red-cockaded woodpecker, Leatherback sea turtle and the Kemp's Ridley sea turtle.

3. The reporting officers recommend authorization of a plan to restore four components of the Neuse River Basin ecosystem. The plan includes construction of rock sills approximately 3,500 feet long at Gum Thicket Creek and 5,200 feet long at Cedar Creek, built at distances of about 60 feet offshore; regrading a previously filled area within the Kinston East wetland complex to the approximate elevation of the adjacent bottomland hardwood forest and allowing natural revegetation of the site by bottomland hardwood species and limited planting; modifying the Low-head Dam on the Little River to allow migration of anadromous fish; and the creation of 10 acres of 4 foot-high oyster reef within an 80 acre service area. The recommended plan is the National Ecosystem Restoration Plan. Implementation of the recommended plan will have a substantial beneficial impact on biological integrity, freshwater mussel populations, anadromous fish populations, emergent wetlands, and the quantity and quality of oyster reef habitat.

4. Based on an October 2012 (FY13) price level the estimated project first cost is $35,774,000. In accordance with the cost sharing provisions contained in Section 103(c) of the Water Resources Development Act of 1986 (WRDA 1986), as amended (33 U.S.C. 2213(c)), ecosystem restoration features are cost-shared at a rate of 65 percent Federal and 35 percent non-Federal. Thus the Federal share of the project first cost is estimated to be $23,253,100 and the non-Federal share is estimated at $12,520,900, which includes the costs of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas (LERRD) estimated at $254,000. The non-Federal will receive credit for the costs of LERRD towards the non-Federal share. The North Carolina Department of Environment and Natural Resources (NCDENR) Division of Water Resources (NCDWR) is the non-Federal cost-sharing sponsor for the recommended plan. The State of North Carolina would be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project after construction, an average annual cost currently estimated at $24,000.

5. Based on a 3.75 percent discount rate and a 50-year period of analysis, the total equivalent average annual costs of the project are estimated to be $1,671,000, including monitoring estimated at $312,000 and OMRR&R. All project costs are allocated to the authorized purpose of ecosystem restoration and are justified by the restoration of 241 average annual functional units in the Basin. The plan would restore the habitats in the most cost-effective manner. The restoration would include 1) creating 80 acres of oyster reef sanctuary with approximately 10 acres of reef top resulting in improved water quality and habitat for commercial and recreational seafood, 2) increasing wetland habitat by 14.5 acres of bottomland hardwoods, creating 15 acres of estuarine marsh, preventing degradation of another 60 acres of estuarine march and protecting a 240 acre wetland conservation easement area for wetland species and improved water resource function, and 3) restoring hydrologic connectivity for 46 miles of important spawning habitat for anadromous fish species.

6. The recommended plan was developed in coordination and consultation with various Federal, State, and local agencies using cost effectiveness and incremental cost analysis techniques to formulate ecosystem restoration solutions and evaluate the impacts and benefits of those solutions. Plan formulation evaluated a wide range of non-structural and structural alternatives under Corps policy and guidelines as well as consideration of a variety of economic, social and environmental

goals. The recommended plan delivers a holistic, comprehensive approach to solve water resources challenges in a sustainable manner.

7. In accordance with the Corps Engineering Circular on sea level change, the study performed an analysis of three Sea Level Rise rates, a baseline estimate representing the minimum expected sea level change, an intermediate estimate, and a high estimate representing the maximum expected sea level change. Projecting the three rates of change over a 50 year period provides a predicted low level rise of 0.42 feet (ft), an intermediate level rise of 0.85 ft and a high level rise of 2.2 ft. Accelerated sea level rise is expected to impact only one part of the recommended plan, which is the Gum Thicket/Cedar Creek site. Accelerated rates of future sea level rise may lead to drowning scenarios of North Carolinas tidal coastal wetlands. It is estimated in the without project condition, at the Gum Thicket reach up to 450 ft of erosion could occur under the historical rate of sea level rise, 671 ft of erosion could occur under the baseline estimate and up to 1,381 ft of erosion could occur under the high estimate over the 50 year period of analysis. At the Cedar Creek reach, 100 ft, 149 ft and 306 ft of erosion could occur under historical sea level rise and for baseline, intermediate and high scenarios, respectively, over the 50 year period of analysis. The environmental benefits of the recommended were based on erosion occurring at the historical rate of sea level rise, this means that the environmental benefits from the plan would actually increase with the accelerated sea level rise scenarios. Average annual habitat benefits for the recommended plan at Gum Thicket/Cedar Creek under the baseline scenario are estimated at 52.7 habitat units (a 10.0 habitat unit increase as compared to the historical sea level rate). Both the shoreline stabilization and marsh creation at Gum Thicket and Cedar Creeks would be affected by sea level rise. The project is designed based upon a historical rate of sea level rise. To reduce risks from potential accelerated sea level rise on the plantings, marsh restoration would include both low and high marshes allowing upslope mitigation of low-lying marshes. The sill design accounts for the historical rate of sea level rise applied over 50 years.

8. In accordance with Corps Engineering Circular on review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and vigorous review process to ensure technical quality. This included District Quality Control, Agency Technical Review (ECO-PCX), Policy and Legal Compliance Review, Cost Engineering Directory of Expertise Review and Certification, and Model Review and Approval. Given the nature of the project, an exclusion from the requirement to conduct a Type I Independent External Peer Review was granted on 18 May 2012. Concerns expressed by the ECO-PCX team have been addressed and incorporated in the final report.

9. Washington level review indicates the plan recommended by the reporting officers is technically sound, environmentally and socially acceptable, and on the basis of Congressional directives, economically justified. The plan complies with all essential elements of the U.S. Water Resources Council's Economic and Environmental Principal and Guidelines for Water and Land Related Resources Implementation Studies. The recommended plan complies with other administration and legislative policies and guidelines. The views of interested parties including Federal, State and local agencies have been considered. State and Agency comments received during review of the final report and environmental assessment included concerns raised by the North Carolina Clearinghouse, the Environmental Protection Agency and the United States Coast Guard with design refinements for compliance with regulations and benefit improvements, as well as a request for continued coordination during the Preconstruction, Engineering and Design phase. The concerns were addressed through USACE response letters dated 7 March 2013, 12 February 2013,

and 26 February 2013, respectively.

10. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan for ecosystem restoration in the Neuse River Basin, North Carolina be authorized in accordance with the reporting officers' recommended plan at an October 2012 (FY13) estimated cost of $35,774,000 with such modifications as in the discretion of the Chief of Engineers may be advisable. My recommendation is subject to cost sharing, financing, and other applicable requirements of Federal and State laws and policies, including Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. 2213). Accordingly, the non-Federal sponsor must agree with the following requirements prior to project implementation.

a. Provide 35 percent of total ecosystem restoration costs as further specified below:

(1) Provide 35 percent of design costs in accordance with the terms of a design agreement entered into prior to commencement of design work for the project;

(2) Provide all lands, easements, and rights-of-way, including those required for relocations, the borrowing of material, and the disposal of dredged or excavated material; perform or ensure the performance of all relocations; and construct all improvements required on lands, easements, and rights-of-way to enable the disposal of dredged or excavated material all as determined by the Government to be required or to be necessary for the construction, operation, and maintenance of the project;

(3) Provide, during construction, any additional funds necessary to make its total contribution equal to 35 percent of total project costs;

b. Shall not use funds from other Federal programs, including any non-Federal contribution required as a matching share therefore, to meet any of the non-Federal obligations for the project unless the Federal agency providing the Federal portion of such funds verifies in writing that expenditure of such funds for such purpose is authorized by Federal law;

c. Prevent obstructions or encroachments on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) such as any new developments on project lands, easements, and rights-of-way or the addition of facilities which might reduce the outputs produced by the project, hinder operation and maintenance of the project, or interfere with the project's proper function;

d. Shall not use the project or lands, easements, and rights-of-way required for the project as a wetlands bank or mitigation credit for any other project;

e. Comply with all applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended (42 U.S.C. 4601-4655), and the Uniform Regulations contained in 49 Code of Federal Regulations (CFR) Part 24, in acquiring lands, easements, and rights-of-way required for construction, operation, and maintenance of the project, including those necessary for relocations, the borrowing of materials, or the disposal of dredged or excavated material; and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act;

f. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace the project, or functional portions of the project, including any mitigation features, at no cost to the Federal Government, in a manner compatible with the project's authorized purposes and in accordance with applicable Federal and State laws and regulations and any specific directions prescribed by the Federal Government;

g. Give the Federal Government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-Federal sponsor owns or controls for access to the project for the purpose of completing, inspecting, operating, maintaining, repairing, rehabilitating, or replacing the project;

h. Hold and save the United States free from all damages arising from the design, construction, operation, maintenance, repair, rehabilitation, and replacement of the project and any betterments, except for damages due to the fault or negligence of the United States or its contractors;

i. Keep and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the project, for a minimum of three years after completion of the accounting for which such books, records, documents, and other evidence are required, to the extent and in such detail as will properly reflect total project costs, and in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 CFR Section 33.20;

j. Comply with all applicable Federal and State laws and regulations, including, but not limited to: Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d) and Department of Defense Directive 5500.11 issued pursuant thereto; Army Regulations 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army"; and all applicable Federal labor standards requirements including, but not limited to, 40 U.S.C. 3141-3148 and 40 U.S.C. 3701 – 3708 (revising, codifying and enacting without substantial change the provisions of the Davis-Bacon Act (formerly 40 U.S.C. 276a *et seq.*), the Contract Work Hours and Safety Standards Act (formerly 40 U.S.C. 327 *et seq.*), and the Copeland Anti-Kickback Act (formerly 40 U.S.C. 276c *et seq.*));

k. Perform, or ensure performance of, any investigations for hazardous substances that are determined necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Public Law 96-510, as amended (42 U.S.C. 9601-9675), that may exist in, on, or under the lands, easements, or rights-of-way that the Federal Government determines to be required for construction, operation, and maintenance of the project. However, for lands that the Federal Government determines to be subject to the navigation servitude, only the Federal Government shall perform such investigation unless the Federal Government provides the non-Federal sponsor with prior specific written direction, in which case the non-Federal sponsor shall perform such investigations in accordance with such written direction;

l. Assume, as between the Federal Government and the non-Federal sponsor, complete financial responsibility for all necessary cleanup and response costs of any hazardous substances regulated under CERCLA that are located in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be required for construction or operation and maintenance of the project;

m. Agree, as between the Federal Government and the non-Federal sponsor, that the non-Federal sponsor shall be considered the operator of the project for the purpose of CERCLA liability, and to the maximum extent practicable, operate, maintain, repair, rehabilitate, and replace the project in a manner that will not cause liability to arise under CERCLA;

n. Comply with Section 221 of Public Law 91-611, Flood Control Act of 1970, as amended (42 U.S.C. 1962d-5b), and Section 103(j) of the Water Resources Development Act of 1986, Public Law 99-662, as amended (33 U.S.C. 2213(j)), which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until each non-Federal interest has entered into a written agreement to furnish its required cooperation for the project or separable element.

11. The recommendation contained herein reflects the information available at this time and current departmental policies governing formulation of individual projects. It does not reflect program and budgeting priorities inherent in the formulation of a national civil works construction program or the perspective of higher review levels within the executive branch. Consequently, the recommendation may be modified before it is transmitted to Congress as a proposal for authorization and implementation funding. However, prior to transmittal to Congress, the sponsor, the State, interested Federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.

THOMAS P. BOSTICK
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Chief of Engineers